

AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A biocompatible membrane, the biocompatible membrane comprising a silicone composition comprising a hydrophile ~~covalently~~-incorporated therein, wherein the biocompatible membrane-silicone composition is configured to control transport of an analyte through the membrane, with the proviso that the silicone composition is not produced from a precursor comprising diisocyanate.

2. (ORIGINAL) The biocompatible membrane of claim 1, wherein the silicone composition comprises a hydrophile grafted therein.

3. (ORIGINAL) The biocompatible membrane of claim 1, comprising two or more domains.

4. (ORIGINAL) The biocompatible membrane of claim 1, comprising a cell disruptive domain, wherein the cell disruptive domain supports tissue ingrowth and interferes with barrier-cell layer formation.

5. (ORIGINAL) The biocompatible membrane of claim 4, wherein the cell disruptive domain comprises the silicone composition.

6. (ORIGINAL) The biocompatible membrane of claim 5, wherein the silicone composition comprises from about 1 wt. % to about 20 wt. % of the hydrophile.

7. (ORIGINAL) The biocompatible membrane of claim 1, comprising a cell impermeable domain, wherein the cell impermeable domain is resistant to cellular attachment and is impermeable to cells and cell processes.

8. (ORIGINAL) The biocompatible membrane of claim 7, wherein the cell impermeable domain comprises the silicone composition.

9. (ORIGINAL) The biocompatible membrane of claim 8, wherein the silicone composition comprises from about 1 wt. % to about 20 wt. % of the hydrophile.

10. (ORIGINAL) The biocompatible membrane of claim 1, comprising a resistance domain, wherein the resistance domain controls a flux of oxygen and glucose through the membrane.

11. (ORIGINAL) The biocompatible membrane of claim 10, wherein the resistance domain comprises the silicone composition.

12. (ORIGINAL) The biocompatible membrane of claim 11, wherein the silicone composition comprises from about 1 wt. % to about 20 wt. % of the hydrophile.

13. (ORIGINAL) The biocompatible membrane of claim 1, comprising an enzyme domain, wherein the enzyme domain comprises an immobilized enzyme.

14. (ORIGINAL) The biocompatible membrane of claim 13, wherein the immobilized enzyme comprises glucose oxidase.

15. (ORIGINAL) The biocompatible membrane of claim 13, wherein the enzyme domain comprises the silicone composition.

16. (ORIGINAL) The biocompatible membrane of claim 15, wherein the silicone composition comprises from about 1 wt. % to about 50 wt. % of the hydrophile.

17. (ORIGINAL) The biocompatible membrane of claim 1, comprising an interference domain, wherein the interference domain substantially prevents the penetration of one or more interferents into an electrolyte phase adjacent to an electrochemically reactive surface.

18. (ORIGINAL) The biocompatible membrane of claim 17, wherein the interference domain comprises an ionic component.

19. (ORIGINAL) The biocompatible membrane of claim 17, wherein the interference domain comprises the silicone composition.

20. (ORIGINAL) The biocompatible membrane of claim 19, wherein the silicone composition comprises from about 1 wt. % to about 10 wt. % of the hydrophile.

21. (ORIGINAL) The biocompatible membrane of claim 1, comprising an electrolyte domain, wherein the electrolyte domain comprises a semipermeable coating that maintains hydrophilicity at an electrochemically reactive surface.

22. (ORIGINAL) The biocompatible membrane of claim 21, wherein the electrolyte domain comprises the silicone composition.

23. (ORIGINAL) The biocompatible membrane of claim 22, wherein the silicone composition comprises from about 1 wt. % to about 50 wt. % of the hydrophile.

24. (ORIGINAL) An implantable biosensor comprising the biocompatible membrane of claim 1.

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25. (ORIGINAL) An implantable drug delivery device comprising the biocompatible membrane of claim 1.

26. (ORIGINAL) An implantable cell implantation device comprising the biocompatible membrane of claim 1.

27-134. (CANCELED)

135. (NEW) The biocompatible membrane of claim 13, wherein the silicone composition has an oxygen-to-analyte permeability ratio such that oxygen is provided to the immobilized enzyme in a non-rate-limiting excess for an enzyme-catalyzed reaction between oxygen and the analyte.

136. (NEW) The biocompatible membrane of claim 135, wherein the oxygen-to-analyte permeability ratio is approximately 200:1.

137. (NEW) The biocompatible membrane of claim 135, comprising a resistance domain, wherein the resistance domain comprises the silicone composition.

138. (NEW) The biocompatible membrane of claim 1, wherein the silicone composition comprises a hydrophile covalently incorporated therein.

139. (NEW) The biocompatible membrane of claim 1, wherein the analyte is glucose.